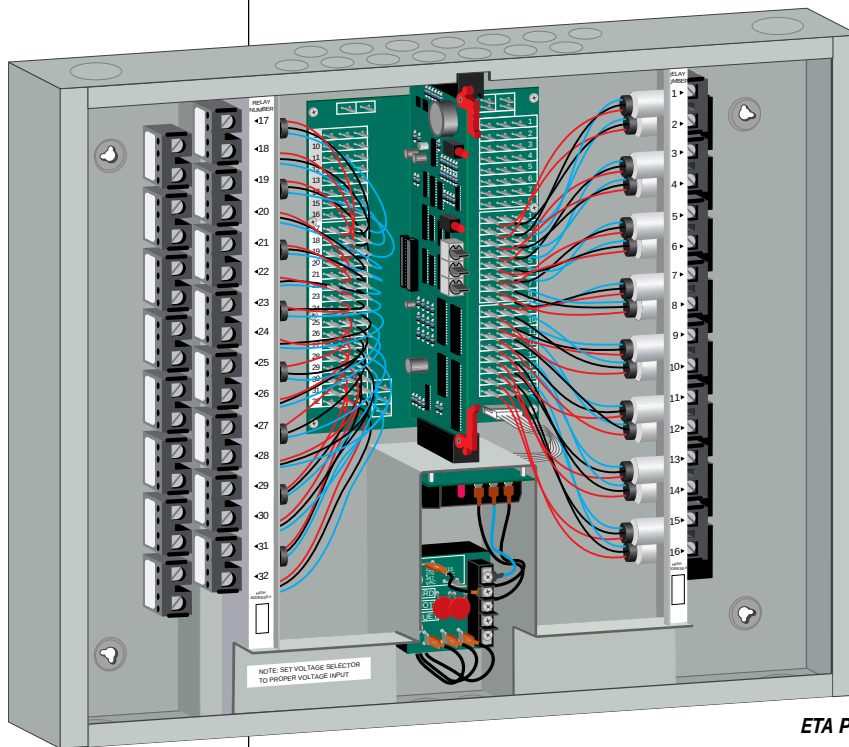




PLC To TLC Relay Controller Card



ETA PANEL WITH RTR32 UPGRADE CARD INSTALLED

Upgrading to TLC

The RTR32 Relay Controller Card is an intelligent upgrade module for a GE Programmable Lighting Control (PLC) panel. It provides a path from PLC to the more fully-featured Total Lighting Control (TLC) system architecture.

Most older GE systems fall into two categories: ETA panels with an ECON Controller, or SRC panels with no central controller. (Refer to "Upgrading PLC To TLC" on the next page for a summary of system components.) To upgrade these panels to TLC, simply replace the existing Relay Controller and Switch Interface Cards with the new RTR32 and RTS16 modules. Upgraded panels can coexist with older panels until the whole system is converted to TLC.

Note: The original type of PLC system, a BCON Controller with BTA panels, can also be upgraded using an additional kit, the RTLCCAN.

DESCRIPTION

The RTR32 Relay Controller Card replaces the ER16 or ER32 card in an existing ETA panel, or the SRCM-R card in an SRC panel. The motherboard in these panels requires one relay controller card to provide full monitoring and control for up to 32 relays. If an ES8, ES16 or SRS16 switch interface card is also present in the PLC panel, it must be upgraded to an RTS16 at the same time as the RTR32.

The RTR32 gives ETA panels distributed intelligence, eliminating the need for a central controller and allowing the panels to run independently. In addition, all upgraded panels will gain built-in lighting control scenarios and advanced communications capabilities. The RTS16 provides programmable switch interfaces and works with the RTR32 to provide full panel control and monitoring.

FEATURES

- Simple plug-in modules.
- No rewiring of relays necessary.
- 32-relay control capability.
- Used with the RTS16, up to 16 global switch inputs available.
- Built-in programmable lighting scenarios.
- Indirect relay switching. Each relay in the panel can only be controlled by the RTR32. There are no landing points for local switches or occupancy sensors.
- Runtime and status information for all relays.
- Memory backup during power outages.

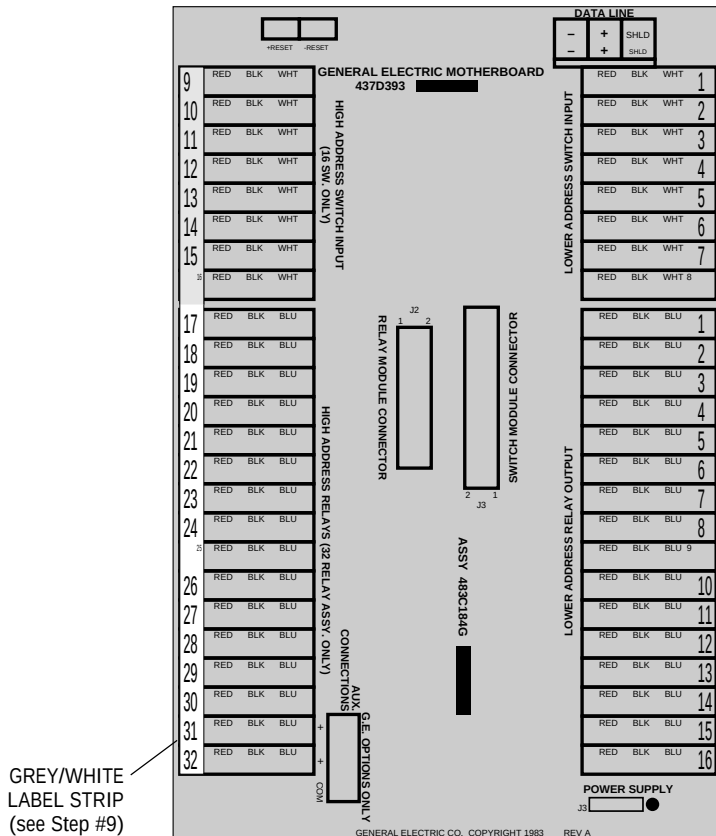
Before starting, read the installation instructions inside.
If you have questions call GE Service at:

1-877-584-2685 (USA) and (Canada)

CAUTION: The power supply must be OFF when inserting or removing cards. These instructions assume the panel has a standard cover which exposes both line voltage and low voltage sections. The line voltage sections must be covered to avoid exposure to live high voltage wiring.

If an SRC system is being upgraded, DO NOT CONNECT THE DATALINE UNTIL AFTER ALL THE PANELS HAVE BEEN UPGRADED. SRC modules will fail if connected to the dataline.

MOTHERBOARD



INSTALLATION

Steps for Upgrading to TLC

1. If you have a BTA/BCON system, install the RTLCCAN kit.
2. For all systems, next install the RTR32 Relay Controller Card.
3. If switch interfaces are required, next install the RTS16 Switch Interface Card.

Installing the RTR32

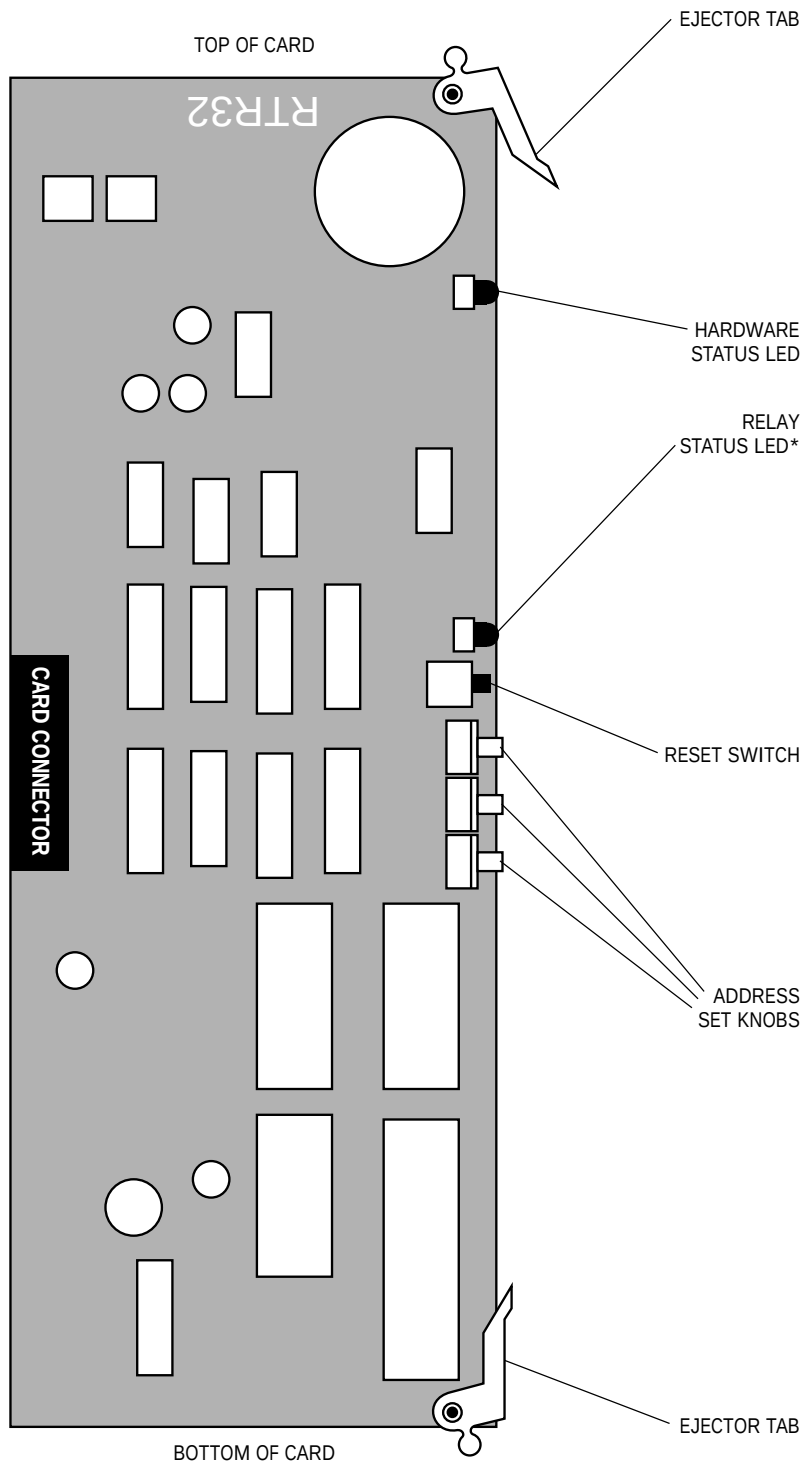
These instructions repeat several of the steps involved in the RTLCCAN installation. If you have just installed the RTLCCAN and have not yet reapplied power, skip to Step #7. **Power must be OFF.**

1. **Program the system.** Before replacing any cards, you should set up the new system program using TLC system software RSOFT-CM1. Upgraded panels must receive an initial program from RSOFT in order to work. To minimize downtime for your lighting control system, please document your site wiring and prepare the RSOFT program for your site **before** physically changing any hardware. Refer to the RSOFT User's Manual supplied with the software.
2. **Turn OFF the circuit breakers** supplying line voltage to all relays and the transformer in the panel.
3. **Remove the panel cover.**
4. **Test the transformer terminals** with a voltmeter to ensure power is OFF. (A red LED should be ON when power is ON, and OFF when power is OFF. However, for complete safety, check with a voltmeter).
5. **Examine the panel interior** to identify the motherboard (shown left), relay controller card (ER16, ER32 or SRCM-R) and switch interface card (ES8, ES16 or

UPGRADING PLC TO TLC

The following chart is designed to help you identify the components of your existing GE Programmable Lighting Control system, and the new components required to upgrade to Total Lighting Control.

	B-GENERATION	E-GENERATION	SRC
Controller	BCON	ECON	SRRP-xx in each panel
Panels	BTA	ETA	SRSP
Relay Controller Card	Built-in	ER16 or ER32	SRCM-R
Switch Interface Card	Built-in	ES8 or ES16	SRS16
Dataline	Yes	Yes	No
To Upgrade to TLC	Replace panel interior with TLCCAN. Install RTR32 and RTS16 cards.	Replace relay card with RTR32. Replace switch card with RTS16.	Replace relay card with RTR32. Replace switch card with RTS16. Install a dataline if multiple panels are to be networked.



*All OFF/any relay ON. When flashing, card is unprogrammed.

SRS16). The relay controller card will be plugged into the left connector (marked "RELAY MODULE CONNECTOR") on the motherboard. The switch interface card will be in the right connector (marked "SWITCH MODULE CONNECTOR"). **Note the address settings on each card.**

6. **Remove the existing relay controller card** by pulling up the Ejector Tabs on the corners of the board. This will "pop" the card out of the connector on the motherboard. Then pull the card straight out.
7. **Inspect the pins in the relay module connector** on the motherboard to ensure there are no broken or bent pins. If any are bent, carefully straighten them using pliers, or call GE Service to replace the motherboard.
8. **Place the supplied white label strip** marked "RELAY NUMBER 17-32" over the existing label marked "RELAY NUMBER 1-16" on the LEFT relay barrier. (Some SRC panels are already marked "17-32" on the left side and will not require the new label. If this is the case, skip to Step #10.)
9. **Snake the small grey/white label strip** (gray for switches 9-16 and white for relays 17-32) under the relay wires on the LEFT side of the motherboard so it aligns with the switches and relays and press in place (see illustration opposite).
10. **Set the address of the RTR32 card** by turning the Address Set Knobs to the required numbers. You should set the same address that the old card had.
11. **Slide the RTR32 card vertically into its slots** until the module rests gently on the relay module connector pins. Make sure the pins are properly aligned and push the card straight in until it is fully seated on the motherboard (you should feel a noticeable "click").
12. **Turn ON the circuit breaker** supplying power to the transformer only.
13. **Test the RTR32** by pressing the Reset Switch for 10 seconds. All relays should come ON. Press again for 10 seconds to turn all relays OFF.
14. **Replace the enclosure cover.**
15. **Turn ON the circuit breakers** to restore power to the relays.
16. **Test, using RSOFT-CM1** in Panel Monitor/Control Mode (see back page).

EMERGENCY SERVICE OR SUPPORT:
1-877-584-2685 (USA) and (Canada)

TESTING THE UPGRADED LIGHTING CONTROL SYSTEM WITH RSOF-CM1

Refer to the TLC RSOF-CM1 Operating Software User's Manual, Part 5, Monitor/Control. To confirm that the RTR32 card is properly controlling relays in a Lighting Automation Panel (LAP), use RSOF-CM1 in the Monitor/Control LAP Mode.

1. If your computer is not currently connected, select the "Connect" option to connect to the LAP or LINK device.
2. From the Main Menu, select "Monitor and Control".

3. From the Monitor and Control Menu, select "Monitor/Control LAP".
4. Enter the Panel Number you wish to monitor.
5. Pressing the Space Bar will toggle the display format to one that provides more detail about each relay.
6. Use Page Down to check the state of all the relays in the panel (ON or OFF).

If the panel is not responding, a message will appear on screen. Call GE Service at one of the numbers above.

DOCUMENTING THE SITE WIRING

In a networked lighting control system, each relay panel must have a unique address number. For TLC upgrades, this is set by the Address Set Knobs on the RTR32 Relay Controller Card and the RTS16 Switch Interface Card.

Why do relay and switch input numbers change when PLC is upgraded to TLC?

In PLC panels, relays were set up in groups of 16 (and switch inputs in groups of 8) as shown in Figure 1. The first 16 relays (and 8 switch inputs) were installed on the RIGHT side of the panel and numbered 1-16 (1-8). Panel addresses were usually assigned as EVEN numbers (Panel #002, #004, etc.). If a panel included another 16 relays (for a total of 32), and another 8 switch inputs (for a total of 16), they were installed on the LEFT side of the panel, but still numbered 1-16 (1-8). This second group of relays and switch inputs was considered another panel, and was assigned the next higher ODD number panel address. So a single tub could include two panel addresses — Panel #002 for the RIGHT side and Panel #003 for the LEFT side.

When PLC panels are upgraded to TLC, they can still have up to 32 relays and 16 switch inputs, but only one panel address (which can be either odd or even) as shown in Figure 2. Relays are numbered 1-16 on the RIGHT side and 17-32 on the LEFT side. Switch inputs are numbered 1-8 on the RIGHT side and 9-16 on the LEFT side. Label strips are supplied with the RTR32 upgrade kit to identify the new numbering scheme (see Steps #8 and #9 on the previous page).

When documenting your site wiring and entering this information in RSOF, review the panel addresses to ensure there are no duplicates. Remember that panels now have one address for both right and left sides, and relays are now numbered 1-32 and switch inputs 1-16.

Figure 1: PLC Panel

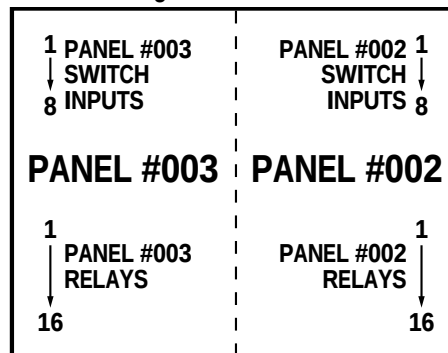
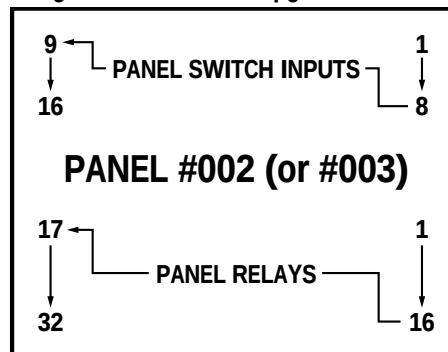


Figure 2: PLC Panel Upgraded To TLC



TROUBLESHOOTING

If no relays respond to the reset test in Step #13 on the previous page, check the RTR32 Hardware Status LED with the low voltage power supply ON.

If the LED is OFF, power is not flowing to the card. Turn OFF the low-voltage power supply and reseat the card.

If the LED is flashing, the card is defective. Call the emergency number shown on the back page.